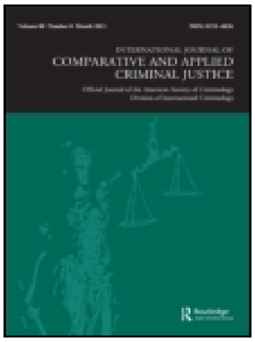

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Further Evidence on the Relationship Between Population Diversity and Violent Crime

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This paper seeks further evidence on the relationship between population diversity and violent crime. In an earlier paper, we elaborated on Peter Blau's theory of population diversity by developing a conception of population diversity consisting of four types: biological, structural, cultural, and dynamic. Further, we argued that each type of population diversity could be distinguished along two dimensions that we called complexity and integration. Having conceived of population diversity in this manner, we maintained that complexity of population diversity facilitates violent interactions in society while integration of population diversity minimizes violent interactions. Accordingly, we hypothesized that societies characterized by high complexity and low integration would suffer the highest rates of violent crime while those characterized by low complexity and high integration would enjoy the lowest levels of violent crime. In the analysis reported in this paper, we pursue two further questions related to this basic hypothesis. First, we ask whether the hypothecated relationship between population diversity and violent crime holds across three different measures of violent crime (i.e., homicide, rape, and robbery). Second, we investigate whether the alleged relationship between population diversity and violent crime is contingent upon the form of violent crime and type/dimension of population diversity that is considered. While our limited sample of 17 nations makes strong conclusions hazardous at best, we can say that the hypothecated relationship between population diversity and violence entertained by this research enjoyed considerable support in the analysis reported below. At a minimum, further research with a larger sample and perhaps more refined measures of the relevant concepts seems justified.

INTRODUCTION

In an earlier paper (Howard, Newman, and Freilich 2002), we elaborated on the concept of population diversity specified by Blau (1977). In Blau's classic statement on the matter, population diversity was viewed along two dimensions: heterogeneity (i.e., the horizontal dimension, including cultural and ethnic diversity) and inequality (i.e., the vertical dimension, including distinctions in economic fortunes). According to Blau's formulation, greater levels of heterogeneity and inequality should produce more social conflict, which he suggested could take the form of violent crime. While Blau and Blau (1982) reported that high inequality in metropolitan areas was linked to violent crime, other studies at the cross-national level have delivered only mixed support for the theoretical proposition (Avison and Loring 1986; Hansmann and Quigley 1982). We maintained in our earlier paper that the equivocal findings for Blau's population diversity theory were owing to conceptual muddle and the measurement problems associated with such ambiguity. Accordingly, we amplified Blau's original conception of population diversity by creating a typology of population diversity — biological, structural, cultural, and dynamic — and further distinguished these types of population diversity along two dimensions that we called complexity and integration. Having conceived of population diversity in this fashion, we hypothecated that complexity of population diversity would facilitate social conflict and lead to violent crime while integration of population diversity would offer a buffer to social conflict and therefore reduce the threat of violent crime. Measuring violent crime with data on homicide from the United Nations, Interpol, and the World Health Organization, we found considerable support for our basic hypothesis.

In the present paper we seek to expand upon our earlier research into the relationship between population diversity and violent crime. Adopting the same conceptualization of population diversity as we deployed last time, we seek to elicit further evidence on its relationship to violent crime by asking two related questions. First, we ask whether the relationship between population diversity and violence is contingent upon the form of violent crime under consideration. In other words, we wonder if our hypothesis that high complexity and low integration will yield high rates of violence holds when the latter concept is operationalized, alternately, as homicide, rape, and robbery. Second, we investigate to what extent the different types and dimensions of population diversity are differentially related to these three forms of violent crime.

In order to address these two questions, we turn first to an explication of the concept of population diversity as we utilize it in the present analysis. Next, we consider the relationship between population diversity and violent crime, describing formally the specific hypotheses that we seek to examine. After delineating our hypotheses, we describe the method by which we constructed our measures of population diversity and violent crime and then lay out our plan of analysis. Having dispatched with these preliminaries, we then report the specific results of our analysis. Finally, we conclude with a general discussion in which we summarize the implications of the results for our hypotheses and identify potential directions for future research on the relationship between population diversity and violence.

ON THE CONCEPT OF POPULATION DIVERSITY

Four Types of Population Diversity

We choose to concentrate on the concept of population diversity because it has particular utility as a schema for organizing the many common measures used in cross-national studies that relate ‘‘background variables’’ to national crime rates. Besides offering a theoretical basis for the relationship between population indicators and violent crime, the concept of population diversity operates at an abstract level that lends itself nicely to investigations in which whole nations are treated as the units of analysis. From an abstract sociological point of view, all nations are societies (just as all individuals are humans); consequently, common elements, structures, and functions should be identifiable in all societies, no matter how large or small, or at what time period (Parsons 1977). Blau’s two dimensions of population diversity — inequality (vertical) and heterogeneity (horizontal) — could hardly be more abstract, so they provide an excellent starting point for cross-national analysis. Unfortunately, concepts intended to account for cross-national variance in violence are difficult to operationalize with the data that are currently available. While calls for ‘‘more data’’ may be warranted given the relative paucity of publicly available population and social indicators at the national level, we maintain that expanded data collection efforts will only be worthwhile if they are informed by reasoned theory and succinct concepts. We think the concept of population diversity can serve in exactly this capacity. Accordingly, we now flesh out the meaning of this concept and then identify currently available indicators that arguably capture its various aspects.

We propose that Blau’s two dimensions are better thought of as *types* of population diversity viewed in the context of both the biological basis of a society and the dynamic aspects of a society. Thus, we identify four types of population diversity. These types are arranged roughly along a continuum that is anchored at one end to the biological basis of a society and to the other by the dynamic basis of a society. The biological basis of a society, such as the sex composition of a nation, establishes the stability of any population. On the other hand, the dynamic basis of a society accounts for population changes that occur more rapidly, such as changes in national borders, influxes and movements of refugees and migrants, and sudden population increases or decreases. Blau’s two dimensions of population diversity, inequality (vertical) and heterogeneity (horizontal), fit somewhere between these two points, as illustrated in Figure One. Thus, the four types may be termed: (1) biological, (2) structural or inequality, (3) cultural or heterogeneity, and (4) dynamic. While there is most certainly overlap among all four types, they are of utility, as already noted, in providing a schema within which to classify the many common measures used in cross-national studies that relate ‘‘background variables’’ to national crime rates. We think that the term ‘‘types’’ is well-suited to this analysis because previous research has found different measures

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of population diversity to be related to crime in different ways. Indeed, it is possible that different types of population diversity may be differentially related to violent crime.

Figure 1: Four Types of Population Diversity

Biological Diversity	Structural Diversity	Cultural Diversity	Dynamic Diversity
sex distribution	income inequality	ethnic, language and religious distribution of the population (heterogeneity)	migration in and out of country; refugees and tourists, naturalizations

The Complexity and Integration of Population Diversity

While the classification shown in Figure One provides a descriptive tool for identifying indicators that may be used to measure each type of diversity, it can be enhanced considerably by recognizing the complexity and integration of diversity that operates within each type. Complexity rests principally on variability in the population. Nations populated with many ethnic groups that speak a kaleidoscope of languages, with people who harbor a wide variety of skills and knowledge, with many short-term visitors, and with an even balance of men and women are more complex. Holding other considerations aside, nations with greater complexity of diversity should be characterized by more conflict and violent crime since encounters between folks with different values, beliefs, and commitments are especially likely to be explosive. In other words, complexity can be viewed as a violence precipitator.

But not all nations evidencing high complexity of diversity are plagued by high rates of violence, and some nations that are not especially complex have more violent encounters among their people than would be expected. For example, it may be possible for a society to be structured according to only two basic classes, but for the integration of these two classes — the extent to which they recognize each other's rights, responsibilities, and contributions to society — to be so poor that class war results. In this case, although the complexity of diversity is low, the conflict produced by the lack of integration may be high because these two groups are not equal parties to the bounty of society. One can think of many other examples in which ethnic conflict results from a simple division of society into two ethnic groups that are poorly integrated. On the other hand, many nations with high complexity of diversity are blessed with low violent crime rates, and this good fortune might be related to the degree to which diverse groups in the population are integrated into the mainstream of life. If all people in a nation have a political voice and are active participants in the productive and consumptive functions of the econo-

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my, for example, the tendency for conflict to be spawned by complexity of diversity may be effectively buffered.

In sum, complexity refers to the amount of variation in the population along certain types of indicators (i.e., biological, structural, cultural, and dynamic) while integration refers to equity and involvement in social living as represented by these same types of indicators. Complexity speaks to the presence of difference in a society (i.e., parity in the number of males and females, many economic classes, many languages, and many short-term visitors) and integration gets at how well these differences are absorbed into the society. Without the buffering action provided by the integration of all members of the population into the mainstream of social life, complexity will likely provoke social conflict and violence. While a society is most complex when it has an equal portion of males and females, for example, this complexity can only flourish into true diversity when women are fully empowered and integrated into the society. Therefore, population diversity is most developed in those countries with both social variety (i.e., more complexity) and social integration. Figure Two depicts a schema in which all permutations of the complexity and integration of diversity are presented, along with examples of countries that represent each type. Armed with this new conceptualization of the dimensions of diversity, we are now better able to specify the four types of population diversity and to identify those national indicators that may be employed to measure them.

Figure 2: Dimensions of Population Diversity

Integration

		High	**Low**
Complexity	**High**	A "pluralist society." Examples include: Australia, Belgium, Denmark, England & Wales, Finland, United States	Endemic disorder: multiple groups warring with each other. Examples include: Colombia, Singapore, South Africa, Zimbabwe
	Low	Homogenous society. Examples include: Hungary, Italy, Japan	Class or ethnic war. Examples include: Chile, India, Rumania, Russian Federation

ON THE RELATIONSHIP BETWEEN POPULATION DIVERSITY AND VIOLENT CRIME

Most previous studies on the topic of population diversity and violence have been couched within the established theoretical framework of Émile Durkheim or, more broadly, within the modernization paradigm. Generally, as countries develop (i.e., become industrialized) in the classic evolutionary sense outlined by the great sociologists of this century, the division of labor becomes more complex, society becomes more diverse, norms are less clearly articulated, alienation ensues, and conflict as well as crime results. Or, in another variation, as industrialization increases, there are more material goods available, individuals develop a desire for these attractive goods and services, and those who can make the best of the opportunities afforded by industrial society move on to wealth, while those who cannot turn to other ways of life including subcultural poverty, crime, and various other ‘‘adaptations’’ (Merton 1938). Yet another variation, the Marxist approach, views societies as becoming more diverse as the two classes within a society (the bourgeoisie and the proletariat) gradually congeal into two opposed forces. This view of the development of societies is also based on the Western concept of the rapid industrialization of societies. All three approaches, therefore, appear to recognize that societies become more diverse as they develop. All three approaches assume that crime (or conflict in the case of Marxist based theories) is the inevitable result of diversity. However, studies of this modernization thesis have generally rejected the straightforward link between social diversity and violent crime. In other words, some rather diverse societies display low levels of violence despite the expectations prompted by the theoretical terms of the modernization thesis (for a review of these studies, see Howard, Newman, and Pridemore 2000). Identifying the two underlying dimensions of population diversity, complexity and integration, represents our attempt to account for the empirical refutation of the standard modernization hypothesis.

Our theoretical approach leads us to make predictions concerning levels of violence according to different combinations among the complexity and integration dimensions of diversity. These expectations are summarized in Figure Three. Recall from our earlier discussion that the complexity dimension is viewed as a violence precipitator while the integration dimension is conceived as a buffer against conflict and violence. Accordingly, we expect to find low levels of violence in those countries that are characterized by low complexity and high integration while we anticipate high levels of violence in nations faced with high complexity and low integration. In between these extremes, we predict that nation-states with high levels of both complexity and integration or low levels of both complexity and integration will yield moderate levels of violence.

METHOD

In order to assess our general hypothesis about the relationship between population diversity and violence, we obtained figures from publicly available data bases with which to construct indicators of the types and dimensions of population diversity as well as measures of different forms of violent crime. Owing to limitations in the availability of data, our sample of countries is confined in the present analysis to 17 (i.e., Australia, Belgium, Chile, Colom-

Figure 3: Predictions of Violence According to the Complexity and Integration Dimensions of Population Diversity

		Integration	
		High	**Low**
Complexity	**High**	Wide range of diversity, well integrated into society, leading to moderate level of conflict. Moderate Levels of Violence	Wide range of diversity, poorly integrated into society, resulting in higher level of conflict. High Levels of Violence
	Low	Low range of diversity, highly integrated, producing homogeneity and low level of conflict. Low Levels of Violence	Low range of diversity, poorly integrated into society, leading to focused conflict between a small number of groups. Moderate Levels of Violence

bia, Denmark, England and Wales, Finland, Hungary, India, Italy, Japan, Rumania, Russian Federation, Singapore, South Africa, United States, and Zimbabwe). While we would obviously prefer a larger sample, we do take some comfort in that the sample contains nations from all parts of the world and includes countries at various levels of development. Table One presents summary descriptions of the variables used in the analysis to be reported below. In this method section, we seek to make plain how these indicators of population diversity and violent crime were fashioned as well as to lay out our basic plan of analysis.

Measuring Population Diversity

Having established in the preceding sections that population diversity is a multifaceted concept (i.e., that it is composed of four types of diversity, that each type of diversity can be further divided into the dimensions of complexity and integration, and that complexity tends to be a violence precipitator while integration operates as a buffering agent), we aim presently to identify cross-national measures that can serve as indicators for the respective types and dimensions of population diversity. We readily acknowledge that the operationalization of the concept of population diversity is hampered by the availability and quality of international social and population data. Still, we contend that the data available for cross-national investigations of social phenomenon like violence and crime will only improve with the guidance of defensible theories and conceptualizations. The concept of population diversity can serve in exactly this capacity.

Table 1. Variable Descriptions

Variable Names	Variable Definition	Number of Cases	Minimum Value	Maximum Value	Median	Standard Deviation
UN Homicide	Intentional homicide offenses per 100,000 population (averaged over 1995, 1996, 1997)	17	0.52	62.10	2.85	19.62
UN Rape	Rape offenses per 100,000 population (averaged over 1995, 1996, 1997)	17	1.23	119.15	7.38	31.81
UN Robbery	Robbery offenses per 100,000 population (averaged over 1995, 1996, 1997)	17	2.00	287.42	53.91	75.60
Sex Disparity	Imbalance between the numbers of each sex (1998)	17	0.00	12.00	9.00	3.08
Gender-related Development	Difference between males and females in life expectancy, educational attainment, and earned income (1993)	17	0.41	0.92	0.83	0.15
Non-agricultural Workers	Percent of workers in non-agricultural occupations (1991)	17	31.00	100.00	91.00	20.10
Income/consumption to Bottom 80%	Percent of income/consumption attributed to bottom 80% income earners and consumers (1979-1996)	17	36.70	65.20	57.80	9.80
Ethnic Heterogeneity	Percent of the population that is ethically heterogeneous (1994)	17	1.00	89.00	11.00	25.68
Adult Literacy	Percent of adult population that can read/write (1993)	17	50.60	99.00	98.70	12.23
Net Migration	Growth or loss of population due to migration (1994)	17	-7.27	7.01	0.00	2.83
Tourists	Number of tourists per 1,000 population (1997)	17	2.13	2400.14	176.28	699.95
Violent Crime Composite	Levels of violence as indicated by homicide, rape, and robbery offenses	17	3.00	9.00	6.00	2.03
Complexity Composite	Variability among population according to demographic, structural, cultural, and dynamic diversity	17	4.00	8.00	6.00	1.05
Integration Composite	Inclusion of population according to demographic, structural, cultural, and dynamic diversity	17	4.00	8.00	7.00	1.52
Population Diversity Composite	Population diversity as represented by complexity and integration composites	17	1.00	4.00	3.00	1.06

Biological Diversity. This type of diversity is the most basic to all societies, for it recognizes the biological building blocks that underlie any collectivity. The two essential characteristics of biological diversity that interest us as sociologists are age and sex distribution. Other disciplines could be interested in different aspects of the biological diversity of a population, such as the diversity of the human gene pool. However, we consider biological diversity as defined by age and sex distribution to be particularly relevant to a study of violence. We know from much research that age and sex distributions influence the patterning and amount of crime, and these associations tend to span many countries and cultures (Newman 1999). Unfortunately, the availability of data limits us to only a consideration of sex distribution.

With regard to the sex distribution in a society, we argue that the complexity of biological diversity peaks when there is parity between the sexes and declines as society becomes dominated by either of the sexes. We support this supposition as follows. A more complex society has a maximum of variability. In terms of sex distribution, the most diverse society would exist when men and women are evenly matched. Encounters between the sexes are likely to be reduced when the number of men relative to women (or women relative to men) increases. This means that a greater number of encounters potentially occur between same-sex individuals. For example, many of the oil states like the United Arab Emirates, Saudi Arabia, and so on have great sex imbalances, with males far outnumbering females. In such patriarchal states, variability in social encounters is minimized, which makes the society less complex. When men and women are at parity, however, variability in encounters is maximized (it is a toss-up whether a particular encounter will be same-sex or different-sex). To the extent that men and women are different in terms of perception, knowledge, experience, sensibility and so on, more interaction between men and women seems to entail more complexity in the population and therefore in social interactions. Thus, a society in which men and women are at a one to one ratio is more complex than a society with an imbalance of either men or women.

While parity in the distribution may indicate the complexity of biological diversity, it says nothing about the degree to which both sexes are integrated into the mainstream of society. Although it is a commonplace for men to dominate economic and political affairs, such a situation hardly represents the full integration of both sexes into the social world. Rather, a nation exhibits more integration of biological diversity to the extent that women also participate in economic and political activities. Thus, a good measure of integration of biological diversity would tell us something about women’s relative participation in the labor force, earning capacity, and ability to realize the ‘‘good life.’’ The greater women’s opportunities to share in a society’s bounty, the more integrated a nation may be with respect to biological diversity.

In order to operationalize the complexity of biological diversity, we draw on the disparity in the number of males and females in a nation-state. We collected the number of males per 100 females in each country from the

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United Nations Statistics Division. Then, we transformed the male to female ratio into a measure of disparity between the number of males and females in a society. Computing the absolute value of the difference between the male to female ratio and 100, we are left with a variable that ranges from 0 (perfect parity between the sexes) to 12 (great disparity between the sexes) in our sample of 17 countries. In order to simplify statistical interpretation, we reverse code this variable so higher scores represent more parity between the sexes (i.e., greater complexity) and lower scores indicate more disparity between the sexes (i.e., less complexity). Of course, this measure of biological complexity obscures whether disparity between the sexes is a result of male or female overrepresentation in the population. We may find it interesting to consider whether the relationship between biological complexity and violence depends on which sex is dominant in the population, but we leave that question for another day.

As for the integration of biological diversity, we used the Gender-related Development Index (GRDI) for 1993 as reported by the United Nations Development Program in its volume titled *Human Development Report 1996*. The GRDI represents differences between males and females with respect to their achievements in life expectancy, educational attainment, and earned income. As males and females approach parity in life expectancy, educational attainment, and earned income, the GRDI gets closer to one. Higher GRDI scores indicate a society with greater biological integration.

Figure 4: Indicators of Biological Diversity

Complexity	Parity between numbers of males and females in a nation (more parity indicates more complexity)
Integration	Inclusion of women into the political and economic life of a nation (more inclusion of women indicates more integration)

Structural Diversity. This type of population diversity incorporates the most common idea of diversity studied by sociologists — inequality, or the structuring of society into economic classes or castes, depending upon the particular theory or ideology to which one subscribes. The Marxist derived view sees societies as vertically structured according to social class, whether measured by different levels of income, lifestyle, living area, job classification, or even self-identification. All societies appear to be structured vertically in some way. And as we have already observed, in many societies (perhaps all) the sex distribution of the population relates in important ways to the social and economic structure, depending on how the latter concept is defined.

For purposes of the present analysis, we conceive of structural diversity along the two dimensions of complexity and integration. Complexity, of course, refers to the variability evidenced in the population, and so the complexity of structural diversity can be taken as variability in the economic roles and relations present in a nation-state. We maintain that countries in which the population is mainly employed in agricultural pursuits are less complex than nations in which the population is mainly employed in industrial or service occupations because agricultural economies require less specialization of labor. Therefore, people are engaged in basically the same economic roles and relations throughout the entire country. The integration of the structural diversity dimension concerns the degree to which the majority of the population partakes of the nation's economic bounty. A nation in which the majority of the population enjoys relatively little economic satisfaction can be described as less integrated with respect to structural diversity. Or to refer to Marxist terms once again, wide gaps in the income and consumption of the population suggest great distance between the ''haves'' and the ''have-nots.''

In the analysis of population diversity and violent crime reported below, our measure of structural complexity is the percent of the workforce employed in agriculture in 1991. This indicator is gleaned from the World Bank publication *World Development Report 1997*. Societies in which agricultural occupations dominate are taken to be less structurally complex. In agrarian societies, people perform similar work, have similar lifestyles, and maintain similar values. Movement off the land into factories and service industries involves an increase in structural complexity. People enter the wage system in order to make money to buy the necessities of life and products to satisfy other needs, and they take increasingly specialized jobs as the division of labor accelerates. In order to simplify statistical interpretation, we reverse code this variable so higher scores represent less of the workforce employed in agriculture (i.e., greater complexity) and lower scores indicate more of the workforce employed in agriculture (i.e., less complexity).

Our measure of structural integration is the percent of income and consumption claimed by the upper 20 percent of income earners and consumers in a nation. This measure is also reported by the World Bank in its *World Development Report 1997*, with data available for a swath of years ranging from 1979 to 1996, depending on the country. As the percent of income and consumption attributable to the top 20 percent increases, the bottom 80 percent must find a way to get along with less, although the presence of plenty in their society is likely to produce some alienation and a sense of exclusion from the economic bounty. Countries in which the top 20 percent control greater amounts of income and consume more are less integrated structurally. In order to facilitate statistical interpretation, we reverse code this variable so higher scores indicate a smaller percent of income and consumption attributable to the top 20 percent of income earners and consumers (i.e., more integration) and lower scores represent a greater percent of income and consumption controlled by the top 20 percent (i.e., less integration).

Cultural Diversity. This type of population diversity refers to the diversity of language, religion, and ethnicity that occurs to differing degrees in many

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Figure 5: Indicators of Structual Diversity

Complexity	Proportion of the workforce employed in non-agricultural pursuits (fewer employed in agriculture indicates more complexity)
Integration	Proportion of income/consumption attributed to the bottom 80% of income-earners and consumers (more income/consumption to the bottom 80% indicates more integration)

societies. Although Blau (1977) refers to this type of diversity as ‘‘horizontal,’’ it is clear that there may be cases in which the cultural categorization is closely related to the structural categorization. For example, certain ethnic groups in some countries may earn low incomes and consume relatively little while other ethnic groups garnish high incomes and consume relatively more. Indeed, the relationship between culture and social structure is an issue of enduring and often intense controversy in sociology (see, for example, Kornhauser 1978).

We argue that the complexity of cultural diversity increases as the number of ethnic, religious, racial, and linguistic groups increases in a nation. In other words, heterogeneity corresponds to greater complexity of cultural diversity. As for the integration of cultural diversity, we observe that the predicate for such integration is the capacity for broad communication of ideas, rules, and norms among the members of the society. To the extent that one ethnic group is able to communicate effectively with other ethnic groups, we can say that a nation is more integrated with respect to cultural diversity. While great complexity of cultural diversity tends to promote violence in a society, the integration of cultural diversity buffers this criminogenic effect by ensuring greater understanding and empathy among the variegated population.

Our measure of cultural complexity derives from Kurian’s (1997) ‘‘Ethnic Homogeneity Index.’’ Kurian’s index represents the homogeneity of a nation-state in terms of ethnicity, religion, and language. Countries that contain fewer ethnic groups, have fewer religious traditions, and enjoy less variety in language score higher on the Ethnic Homogeneity Index. In order to assist in statistical interpretation, this variable is reverse coded so higher scores indicate more ethnic groups, more religious traditions, and more variety in language (i.e., more complexity) and lower scores represent the opposite (i.e., less complexity).

Our measure of cultural integration is the percent of the adult population classified as literate in 1993. This variable is reported by the United Nations Development Program in the *Human Development Report 1996.* The ability to read and write is a crucial skill in modern nations. Literacy permits one to take part in social and economic life, and to traffic in the printed word, an import-

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ant medium for purposes of human exchange. As the percent of the adult population that can read and write increases, countries are thought to be more culturally integrated.

Figure 6: Indicators of Cultural Diversity

Complexity	Heterogeneity in terms of ethnicity, religion, and language (more heterogeneity indicates greater complexity)
Integration	Proportion of the adult population that can read and write (higher literacy rates indicate more integration)

Dynamic Diversity. While it may be argued that this type of diversity is just a sub-class of the cultural dimension, we have distinguished it as a dimension for three reasons. First, ethnic diversity in societies or its absence may not be the direct result of migration, but rather the result of historical changes in borders (very much the case in Europe, especially in Yugoslavia). Second, the role of migrant groups tends to be dynamic; they move into one area, develop ways of coping with their new country, and assimilate in different ways and to varying degrees. As the Chicago school demonstrated, many migrant groups move through areas of a city. Their histories are very much ones of movement. It is therefore the movement aspect of migration that we wish to capture here. Third, migrant groups have long been used as a political whipping boy by politicians and others for the ills of society, with recurring calls to “send them back to where they came from.” Migrants of various kinds have been closely identified with crime, particularly since the studies of the Chicago school in the first half of the 20th century. Much of traditional American sociology has been built on the study of migration. Sellin’s *Culture Conflict and Crime* (1938), for instance, was a seminal piece of theory and research for many decades in the United States.

Many migrant groups also suffer clear formal discrimination at the hands of host countries, which may refuse to provide them with citizenship, even when they form an important and needed part of the economy. Thus, although migrants do indeed display significant cultural differences from citizens of the host society, they are also characterized by a dynamic in regard to assimilation and formal discrimination that other cultural groups in a society may not suffer. No cross-national studies have examined the effects of migration on violence (though some studies have examined the general relationship between migration and crime, see Sung and Reed [1997]). The dominance of the modernization thesis in comparative criminology is probably the reason for the sparse attention given to migration at the cross-national level. As Neuman and Berger (1988) have pointed out, the modernization perspective fails to treat the nations of the world as dynamic actors that perform in a system of world affairs and economics. Perhaps this view of the global role of nations was diffi-

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cult to conceive of some two decades ago. The world systems theory put forward by Wallerstein (1974), which conveys the view of nations in a world system, has not been integrated into criminology. Our introduction of a dynamic dimension into population diversity recognizes the value of this approach. Populations now flow in and out of countries much more than in the past (with the exception of specific historical periods in which proactive migration programs dominated in the United States at the beginning of the 20th century, or Australia and Israel post World War II). Tourism is at an all time high, and national borders are transcended by the Internet and mass media. The industrial and service systems of many countries depend on the immigration of cheap labor. And the trouble spots of the world have produced a continuous flow of refugees into many different countries. The great immigration periods early in this century in the United States spawned much research on immigration, adaptation and assimilation. Criminologists also studied its relationship to crime. But they have not studied migration along with other national indicators in reference to a global system of trade not only in goods, but in labor or human capital. As we know from the classic studies of immigration, migrant groups are characterized by movement; they move into areas of a city or country, assimilate, adapt, and often move on to other areas. These groups do much to add to the diversity of any society. Migrants are changed by and can dramatically alter the societies of which they are a part. Thus, the movement of populations in and out of nations is an important indicator of the dynamic aspect of diversity at the international and national level. It is an important key to the interrelationships between countries, as are other standard indicators such as international trade.

Our measure of dynamic complexity is net migration as reported by the *Gale Country and World Rankings Reporter* (1995). As the number of people immigrating to a country increases relative to those departing, net migration grows in the positive direction. As the number of people immigrating to a country decreases relative to those departing, net migration grows in the negative direction. We argue that complexity increases when a nation-state takes in more immigrants and diminishes when a nation-state loses population through emigration. Thus, we transform the net migration variable into a dichotomy. The first category contains all nation-states in which net migration was negative or zero while the second category includes those countries in which net migration was positive. When a country has positive net migration, it is becoming more complex. When a country has negative net migration or achieves parity in those immigrating and emigrating, it is becoming less complex or its complexity remains the same.

With respect to dynamic integration, our measure is the number of foreign tourists as reported by Kurian (1997) per 1,000 national population. We argue that more foreign tourists relative to national population indicate greater integration in a country. Nation-states that feature tourism as an economic activity must be able to integrate foreigners for brief periods of time. At a minimum, hotels or other lodging must be available, as well as means of conveying the

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tourists from one point of interest to another. More tourists relative to the native population means that a nation-state must accommodate itself well to visitors. Because tourists are not typically socialized in local mannerisms and values, the natives must be capable of interacting with and accepting people from many different countries. Facility in language is no doubt high in countries with high rates of tourism. More generally, nation-states that traffic in tourism must be able to make outsiders feel welcome, safe, and secure.

Figure 7: Indicators of Dynamic Diversity

Complexity	Population growth owing to migration (positive net migration indicates greater complexity)
Integration	Number of tourists relative to the native population (more tourists relative to population indicates high integration)

Population Diversity Composite. Countries were classified in one of the four combinations of complexity and integration of diversity identified in Figure Three in the following manner. First, the four indicators of complexity (i.e., biological, structural, cultural, and dynamic) and the four indicators of integration (i.e., biological, structural, cultural, and dynamic) were transformed into dichotomies. Those countries that scored below the median on a particular indicator were given a one and those that scored above the median were given a two. The four dichotomous indicators for complexity and the four dichotomous indicators for integration were summed separately to yield a complexity composite and an integration composite, both of which had possible ranges of four to eight. Both the complexity composite and the integration composite were then transformed into dichotomies. Countries were classified as more complex if they scored above the median on the complexity score and less complex if they scored below the median on the complexity score. Similarly, countries were considered more integrated if they fell above the median on the integration score and less integrated if they came in below the median. The final population diversity measure incorporates the complexity and integration dichotomies into four categories: (1) low complexity and high integration, (2) low complexity and low integration, (3) high complexity and high integration, and (4) high complexity and low integration.

Measuring Violence

Whereas in our earlier effort to examine the relationship between population diversity and violence we employed three different measures of one type of violent crime (i.e., homicide as reported by the United Nations, Interpol, and the World Health Organization), here we consider the relationship between population diversity and three different forms of violent crime (i.e., homicide, rape, and robbery). As discussed above, one of the questions we seek to address is whether the relationship between population diversity and violence is contingent upon the form of violence under consideration. The following discussion explains the source of our information about violent crime in the sample of nations under study and details how we constructed our violent crime variables to make them amenable to analysis.

Homicide. Our measure of homicide is taken from the Sixth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems. Specifically, we gleaned figures for committed, intentional homicides for three successive years (i.e., 1995, 1996, and 1997).[4] Using population data provided by the United States Bureau of the Census in its International Data Base, we calculated rates per 100,000 people. In order to smooth out year to year fluctuations, we adopted common practice in the comparative criminology literature and produced an average homicide rate for the three years. For purposes of the analysis reported below, we then transformed this average homicide rate into a dichotomous variable (i.e., distinguishing categories at the median) and a trichotomous variable (i.e., distinguishing categories by breaking the countries into three equal groups).

Rape. We constructed our measures of rape in the same manner as we produced indicators of homicide. We gathered data from the Sixth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems concerning the number of reported rapes in 1995, 1996, and 1997. Using population data from the United States Bureau of the Census's International Data Base, we transformed these raw figures into rates per 100,000 people. Next, we prepared an average rape rate for each country and then converted this rate into dichotomous and trichotomous variables in the same way as we did for homicide.

Robbery. Our last measure of violent crime, robbery, was also produced from the figures provided by the Sixth United Nations Survey of Crime Trends and Operations of Criminal Justice Systems. As with the indicators for homicide and rape, we collected raw figures on the number of reported robberies for 1995, 1996, and 1997. After converting these raw numbers into rates per 100,000 population with data provided by the United States Bureau of the Census, we then calculated an average robbery rate for each country. Following the procedure described for the two other dependent variables, we fashioned dichotomous and trichotomous variables.

Violent Crime Composite. Finally, in order to assess the efficacy of our general hypothesis concerning the relationship between population diversity and violence, we combined the information on our three forms of violence to form a composite measure of violent crime. Using the trichotomous measures of homicide, rape, and robbery, we simply summed the values for each case on these three variables. The resulting variable, which we refer to as the violent crime composite, ranged from three to nine. In order to aid the analysis reported below, we then transformed this variable into a trichotomy with each category containing roughly the same number of cases.

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Plan of Analysis

Our aim in this paper is to assess the accuracy of our general hypotheses concerning the relationship between population diversity and violent crime. Accordingly, we report below the results of two basic types of analysis. First, we produced crosstabulations in which our violent crime composite is paired with our population diversity composite. This analysis offers evidence of a general nature about the relationship between our dependent and independent variables. Because we are also interested in the extent to which our measures of violent crime are differentially related to the population diversity composite, we also report crosstabulations in which our measures of violence are decomposed. Second, in order to assess whether the forms of violence are differentially related to the types and dimensions of population diversity, we present a Pearson correlation matrix. Taken together, these two forms of evidence should allow us to answer the two main questions that guide this research.

Figure 8: Violent Crime Composite by Population Diversity Composite

		Violent Crime Composite		
		Low	Moderate	High
Population Diversity Composite	Low Complexity and High Integration	Hungary Italy Japan		
	Low Complexity and Low Integration	India	Chile Rumania	Russia
	High Complexity and High Integration		Australia Belgium Denmark Finland	England United States
	High Complexity and Low Integration	Singapore	Colombia	South Africa Zimbabwe

RESULTS

Figure Eight presents a crosstabulation of countries according to their representation in the violent crime and population diversity composites. Recalling our hypotheses articulated in Figure Three, we have shaded those cells in which we expect our cases to fall. Countries that fall to the right of the shaded cells experience more violent crime than we would have predicted while those that appear to the left of the shaded cells experience less violent crime than we would have suggested. Overall, 11 of the 17 nations (65 percent) in our sample report levels of violent crime that conform to our theoretically informed predictions. Those countries that do not meet our expectations with respect to levels of violence are generally located in a cell adjacent to the one in which we predicted their appearance. The Russian Federation, England and Wales, as well as the United States suffer higher levels of violence than we would have expected and India experiences slightly lower levels of violence. The exception to this rule is Singapore, which should yield high levels of violence given its placement as a high complexity and low integration society but reports instead low levels of violence.

Figure 9: Levels of Homicide by Population Diversity Composite

		Levels of Homicide		
		Low	Moderate	High
Population Diversity Composite	Low Complexity and High Integration	Italy Japan	Hungary	
	Low Complexity and Low Integration		Chile India Rumania	Russia
	High Complexity and High Integration	Australia Belgium Denmark	Finland	England United States
	High Complexity and Low Integration	Singapore		Colombia South Africa Zimbabwe

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Figure Nine reports on the relationship between levels of homicide and the population diversity composite. As this crosstabulation reveals, nine of the 17 countries (53 percent) in our sample conform to our expectations. Singapore continues to defy in a particularly dramatic way our overall expectations while the other nations fall into cells adjacent to those we predicted. Interestingly, while Australia, Belgium, Denmark, and Hungary confirmed our theoretical predictions when violent crime was measured as a composite of three types of violence, levels of homicide are lower than we would have guessed in the first three cases and slightly higher in Hungary. Moreover, when violent crime is measured as homicide, India and Colombia both meet our theoretical expectations. Once again, we find that the Russian Federation, England and Wales, as well as the United States encounter higher levels of violence than their degree of population diversity would lead us to believe.

Figure 10: Levels of Rape by Population Diversity Composite

		Levels of Rape		
		Low	Moderate	High
Population Diversity Composite	Low Complexity and High Integration	Hungary Italy Japan		
	Low Complexity and Low Integration	India	Chile Rumania Russia	
	High Complexity and High Integration		Denmark England Finland	Australia Belgium United States
	High Complexity and Low Integration	Singapore	Colombia	South Africa Zimbabwe

Turning to the crosstabulation of levels of rape and the population diversity composite displayed in Figure Ten, we see that, as with Figure Eight where violence is represented by our composite measure, 11 of our 17 nations (65 percent) meet the expectations of our hypotheses. Once again, Singapore reports far lower levels of rape than we would have expected given informa-

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tion about population diversity in that society. We also see that, as with the violent crime composite, both India and Colombia report lower levels of rape than indicated by their degree of population diversity. Interestingly, the Russian Federation, which reported higher levels of overall violence and homicide, falls into its predicted category. Moreover, whereas England and Wales conforms to our expectations with respect to levels of rape, both Belgium and Australia have higher levels of rape than their level of population diversity would suggest. The case of Australia is especially noteworthy since it reported lower than expected homicide levels but higher than expected levels of rape. Once again, confirming its popular designation as a particularly violent society, the United States falls to the right of the shaded cells, indicating higher levels of rape than its population diversity would theoretically dictate.

Figure 11: Levels of Robbery by Population Diversity Composite

		Levels of Robbery		
		Low	Moderate	High
Population Diversity Composite	Low Complexity and High Integration	Hungary Japan	Italy	
	Low Complexity and Low Integration	India Rumania		Chile Russia
	High Complexity and High Integration	Belgium	Denmark Finland	Australia England United States
	High Complexity and Low Integration	Singapore	Colombia Zimbabwe	South Africa

Figure Eleven reports on our last crosstabulation between levels of robbery and the population diversity composite. As is readily apparent from the relative dearth of countries falling into the shaded cells, our predictions concerning levels of violence given indications of population diversity are much poorer for levels of robbery. With violence measured in this fashion, only five of the 17 countries (29 percent) in our sample satisfy our theoretical expectations. As in the previous figures, Singapore yields much lower levels of rob-

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bery than our theory of population diversity would lead us to believe. Moreover, India, Rumania, Belgium, Colombia, and Zimbabwe report slightly lower levels of robbery than expected, while Chile, the Russian Federation, Australia, England and Wales, as well as the United States reported unexpectedly high levels of robbery. Of some interest, we note that three countries (i.e., Japan, Finland, and South Africa) consistently met our theoretically derived expectations while the United States consistently reported higher than expected levels of violence on all three measures.

Finally, in order to assess whether types and dimensions of population diversity are differentially related to forms of violent crime, Table Two presents Pearson correlations. The reader will recall that our theory of population diversity maintains that complexity should precipitate social conflict and violent crime while integration should offer a buffer against such conflict and violence. In other words, we would expect the Pearson correlations between indicators of complexity of population diversity and forms of violent crime to be positive while the correlations between indicators of integration of population diversity and forms of violent crime should be negative. To facilitate the reading of Table Two with these basic predictions in mind, we have shaded the rows in which indicators of complexity of population diversity appear. While few of the coefficients reported in Table Two reach the level of statistical significance, probably due to the small number of cases in our sample, the signs of these coefficients are largely as we would expect. Indeed, the correlations between the rape rate and measures of complexity of population diversity are consistently positive while those for integration of population diversity are always negative. As for the robbery rate, the signs of the correlations are as we would expect with the exception of the measure of integration of cultural integration (i.e., adult literacy), which is positive when it should be negative. Homicide is the most troublesome of the violence measures, with the correlations for complexity of structural diversity (i.e., percent nonagricultural workers) and complexity of dynamic diversity (i.e., net migration) negative where they should be positive. Finally, while the small number of cases makes statistical significance difficult to attain, we should note that our measure of integration of structural diversity (i.e., percent of income/consumption attributable to the bottom 80 percent of income earners and consumers) is significantly related to homicide rates and robbery rates. This finding is consistent with a prevailing trend in comparative criminology in which income inequality is associated with high levels of violent crime. Additionally, we find that complexity of cultural diversity (i.e., ethnic, religious, and linguistic heterogeneity) yields a significant direct relationship with our measure of homicide. This finding is also consistent with prior research.

DISCUSSION

While our limited sample of 17 nations makes strong conclusions hazardous at best, we can say that the hypothecated relationship between population

Table 2: Pearson Correlations Between Types of Violent Crime and Measures of Population Diversity

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. UN Homicide	1.00										
2. UN Rape	.47	1.00									
3. UN Robbery	.55*	.77*	1.00								
4. Sex Disparity (C)	.15	.45	.31	1.00							
5. Gender Development (I)	-.25	-.15	-.05	.04	1.00						
6. Non-agricultural Workers (C)	-.09	.06	.15	.03	.90*	1.00					
7. Income Bottom 80% (I)	-.61**	-.39	-.57*	-.25	.48	.37	1.00				
8. Ethnic Heterogeneity (C)	.57*	.39	.34	.04	-.79**	-.57*	-.45	1.00			
9. Adult Literacy (I)	-.21	-.10	.02	.03	.88**	.75**	.29	-89**	1.00		
10. Net Migration (C)	-.08	.27	.18	.08	.57*	.63**	.35	-.16	.24	1.00	
11. Tourists (I)	-.25	-.21	-.27	-.13	.19	.27	.18	-.18	.14	.01	1.00

* = significant at the .05 level (two-tailed)
** = significant at the .01 level (two-tailed)

diversity and violence entertained by this research enjoyed considerable support in the analysis reported above. Considering violent crime as a composite of three forms of violence (i.e., homicide, rape, and robbery), we found that nearly two-thirds of the societies that we studied conformed to our theoretical predictions. This suggests that our basic hypothesis (i.e., that complexity of diversity promotes conflict and violence while integration of complexity acts as a buffer against conflict and violence) is robust and warrants further investigation. When we decompose our composite measure of violence in order to address the first question for which this research sought further evidence, we find that the relationship between population diversity and violence is contingent on the form of violence that is considered. Our theoretical predictions concerning the relationship between population diversity and violence are borne out most consistently for levels of rape (i.e., nearly two-thirds of the countries considered satisfy our predictions), slightly less consistently for levels of homicide (i.e., roughly half of the societies conform to our hypotheses), and quite poorly indeed for levels of robbery (i.e., less than one-third of the nations perform as expected). While the generally poor performance of the measure of robbery may be understandable since it is a special type of violent crime tinged with elements of property crime, the difficulty encountered with homicide is a bit more bothersome. As for the question about the consistency of the relationship between types and dimensions of population diversity and forms of violence, our analysis again yields results that are largely consistent with our overall theoretical predictions. Nearly all of the correlation coefficients are in the direction that we would expect given our theoretical premises, although once again the relationship between measures of population diversity and homicide presents a particular difficulty. While few of the coefficients reach statistical significance, this is likely a result of the paltry sample that we were able to assemble with complete data on all relevant measures. Still, despite the shortcomings of our analysis and the less than consistent results, we conclude that our hypothecated relationship between population diversity and violence seems to hold water. At a minimum, further research with a larger sample and perhaps more refined measures of the relevant concepts seems justified.

We maintain that while complexity of population diversity tends to provoke violent encounters in a society, these bouts of violence can be assuaged to the extent that a society takes pains to integrate its varied members into the ongoing life stream. As we move ever deeper into the 21st century, it is clear to most observers that globalization and its attendant processes will lead to further differentiation of national populations as people become increasingly mobile and engaged by myriad cultural forms and lifestyles. While this process of differentiation is deplorable to the extent that it is associated with violence, it is also clear that diversity carries virtues as well, such as the promise of new ideas, engaging art, provocative music, and scientific advancement. In any case, it is unlikely that the processes leading to social differentiation can be halted at this late stage. After all, they have been at the

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heart of human history for as long as humans have been considering the subject. One need look no further than the classic statements of sociology offered by Émile Durkheim, Karl Marx, and Max Weber to find evidence of the enduring importance of social differentiation to the course of human history and the production of social order. While we can probably do very little to stem the tide of social differentiation, we need not suffer the debilitating consequences of complexity of population diversity. As the evidence presented in this paper attests, those societies that have achieved some measure of integration of population diversity seem to have insulated themselves from the violence that predictably attends telling distinctions among members of society. Rather than bemoaning the forces of modernity that increasingly make people different from one another, the results of this research encourage attempts to include people of different persuasions into the mainstream of social life. Successfully integrating diverse populations offers a real chance to have our cake and eat it, too.

NOTES

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4. Data for the United States as well as England and Wales were missing from the United Nations data base. In order to include these countries in our analysis, we gathered homicide information for the United States from HEUNI's ‘‘crime guide’’ which reports returns for the United States to the UN survey that have not yet made their way into the data base publicly available on the United Nations Criminal Justice Information Network website. As for England and Wales, we also obtained a measure of homicide from HEUNI's ‘‘crime guide,’’ but in this case the data are provided by Interpol and were only available for 1998.

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